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Investigation of initial state effects in p+Pb collisions at ATLAS via measurement of centrality dependence of dijet yields

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In this poster, we present the ATLAS measurement of the centrality dependence of the dijet per-event yield at center-of-mass energy 8.16 TeV in p +Pb collisions. The per-event yield of unfolded dijet pairs is presented in terms of kinematic variables that allow for full characterization of the partonic scattering system, i.e. the average p_T of the dijet, $p_{T,Avg} = (p_{T,1} + p_{T,2})/2$, the boost of the dijet system, $y^b = (y_1^{CM} + y_2^{CN})/2$, and the half rapidity separation between the jets, $y^* = |y_1^{CM} - y_2^{CM}|/2$. Initial state effects are investigated by constructing central-to-peripheral ratios of dijet yields, R_{CP} . We present R_{CP} results comparing central collisions with peripheral ones rescaled by the nuclear thickness function T_{AB} , in order to equalize the two based on pure geometrical expectations. The R_{CP} shows a clear dependence on the Bjorken- x of the parton extracted from the proton in the hard-scattering, x_p , while no clear trend is observed while displaying the results as a function x_{Pb} . These results will help in understanding the implications introduced by the initial state kinematics in p +Pb collisions.

Category

Experiment

Collaboration (if applicable)

ATLAS Collaboration

Primary author: LONGO, Riccardo (Univ. Illinois at Urbana Champaign (US))

Presenter: LONGO, Riccardo (Univ. Illinois at Urbana Champaign (US))

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